

Thermal Non-equilibrium Consistent with Widespread Cooling

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Time correlation analysis has been used to show widespread cooling in the solar corona; this cooling has been interpreted as a result of impulsive (nanoflare) heating. In this work, we investigate wide-spread cooling using a 3D model for a solar active region which has been heated with highly stratified heating. This type of heating drives thermal non-equilibrium solutions, meaning that though the heating is effectively steady, the density and temperature in the solution are not. We simulate the expected observations in narrowband EUV images and apply the time correlation analysis. We find that the results of this analysis are qualitatively similar to the observed data. We discuss additional diagnostics that may be applied to differentiate between these two heating scenarios.